

Appendix 4

2014 Fen orchid *Liparis loeselii* survey report for Mill Marsh West on the Butterfly Conservation reserve at Catfield Fen

Royal Society for the Protection of Birds, 2014

Introduction

1. In early 2014, the RSPB produced two reports on *Sphagnum* moss and fen orchid at Catfield Fen^{1,2}. This report is an update following 2014 survey work undertaken by the RSPB in Mill Marsh West. The survey recorded a significantly greater numbers of fen orchids within the colony than in previous surveys, but a loss of individual plants from the colony area where *Sphagnum* encroachment is most significant.

2014 Survey results

2. The 2014 Survey followed the same method as 2013. The blocks surveyed each year are those that were cut the preceding March (Figure 1). The survey method was not designed to pick up year-to-year change, but to provide a long term data set that could indicate the broad trend in the population over time. This is designed to act as an early warning system for rapid loss and to assess response to habitat management in the longer term.

¹ RSPB(2014). An assessment of Sphagnum moss and fen orchid Liparis loeselii on Mill Marsh West and Mill Marsh East at Butterfly Conservation Catfield Fen. RSPB

² RSPB (2014). A survey of Sphagnum moss at Butterfly Conservation Catfield Fen and comparison with past surveys. RSPB.

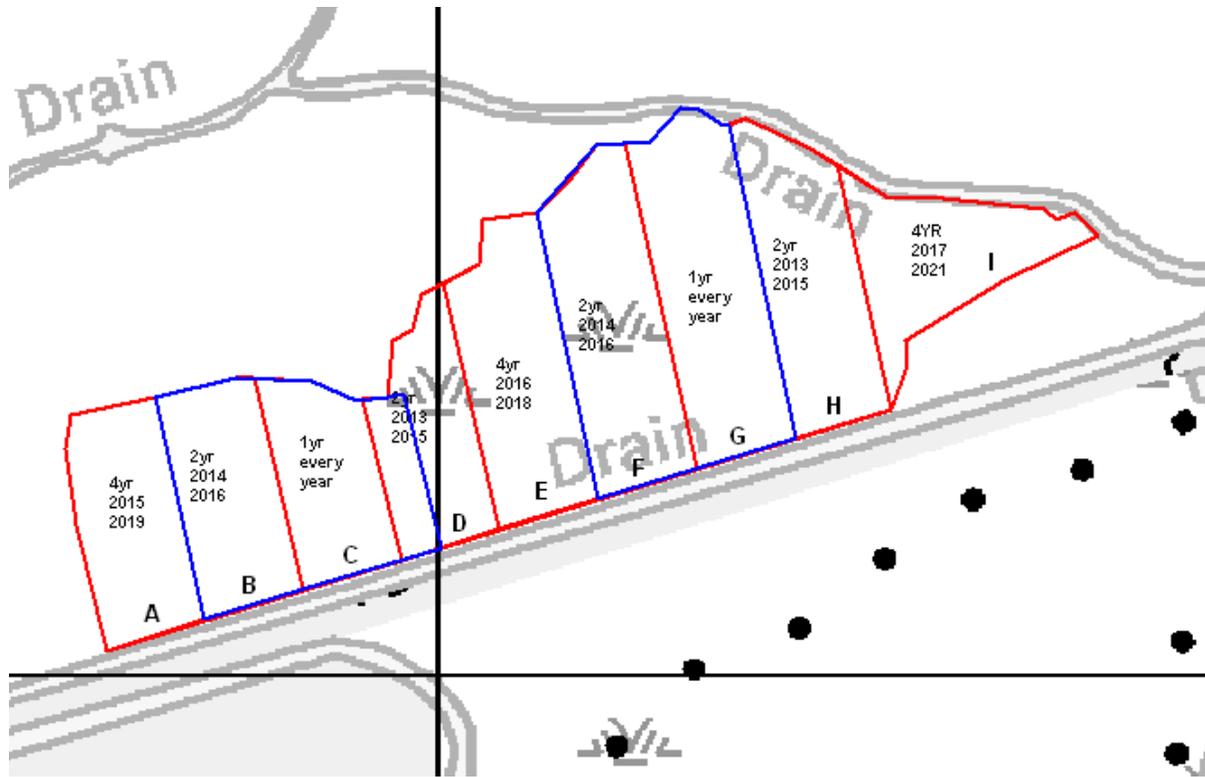


Figure 1: Mill Marsh West Cutting plan and 2014 Fen orchid count area

Red blocks = Reed blocks cut on rotations

Blue blocks = Area cut in March 2014 and counted for fen orchid in June 2014

- In March 2014, Blocks B, C, F, G, and part of block D were brushcut (with vegetation burnt on the fen in rows), and then surveyed for fen orchids in June 2014. Table 1 shows the numbers of spikes counted in 2013 and 2014 for each block. Figure 2 provides the distribution of spikes recorded in the two surveys.

Table 1: 2013 and 2014 Fen orchid counts at Mill Marsh West

Block	Total spikes 2013	Total spikes 2014
A	-	-
B	-	128
C	860	967
D	90	589 (part)
E	-	-
F	-	57
G	6	102
H	8	-
Total	964	1843

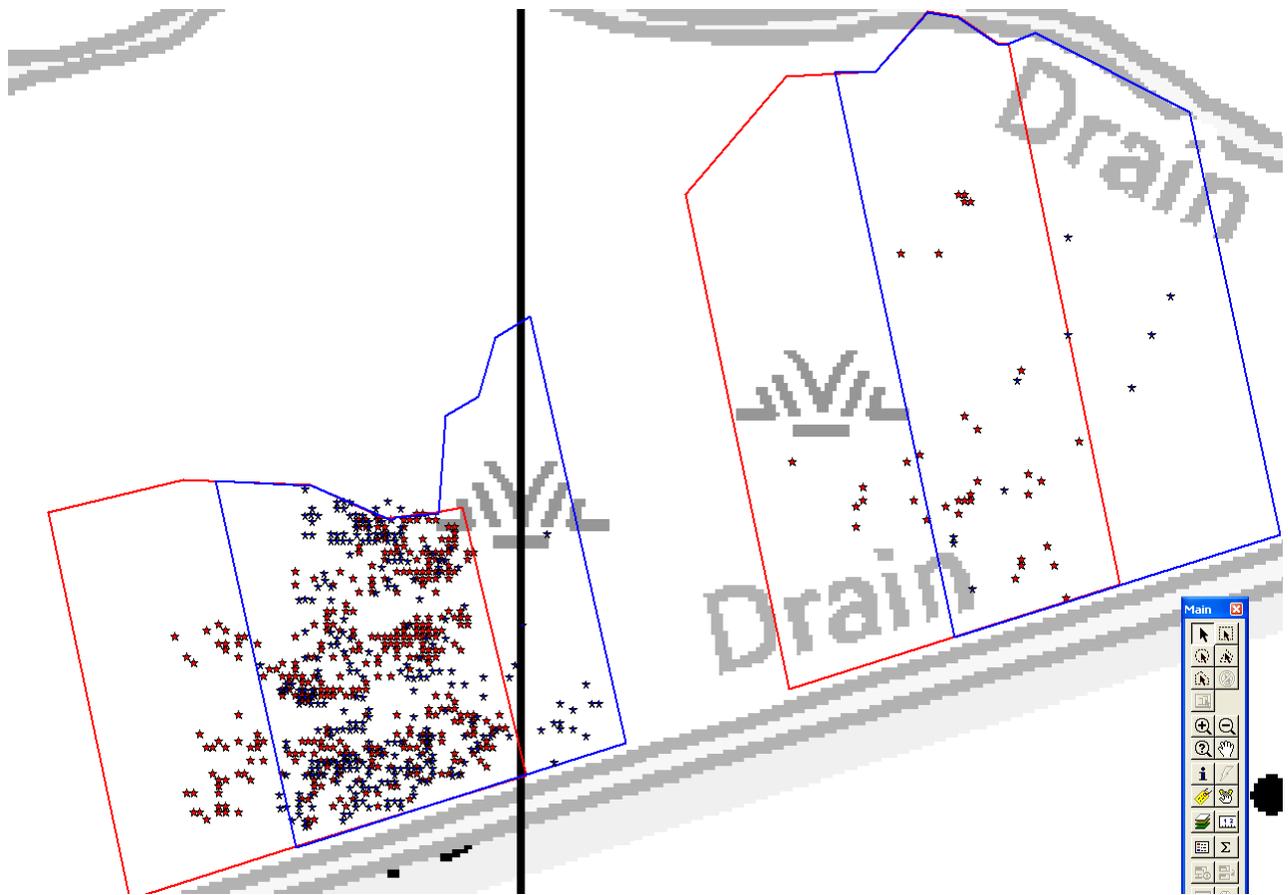


Figure 2: Map showing fen orchids counted in 2013 and 2014 at Mill Marsh West

Blue star = Fen orchid plant 2013
 Blue blocks = Area surveyed in 2013
 Red star = Fen orchid plant 2014
 Red blocks = Area surveyed in 2014

4. There is clearly a significant increase in number of fen orchid spikes within the blocks surveyed in both 2013 and 2014, especially blocks D (which was only partly surveyed) and G. This could be a response to suitable cutting management, burnt areas providing germination opportunities, the warm winter, hydrological change, natural cycle within the population, or other biotic and abiotic factors.
5. Since 2011, the colony has been placed under a management regime targeted specifically at maintaining and improving conditions for fen orchid. It is highly likely that this change in management has contributed significantly to the apparent population increase. However, this is based on a single year's count and more data will be required to understand trends and links to management in the longer term.

6. Blocks B and F were counted in 2014, but not in 2013 so no comparison can be made in these areas. Block B is an area of patchy *Sphagnum* and it will be important to re-survey this area in future years to detect any loss of plants to *Sphagnum* encroachment.
7. The population at Catfield Mill Marsh West is now likely to be the largest colony in the UK, and holds 40 – 50% of the UK population.

Loss of Fen orchids to North of block C

8. Despite the excellent total count and apparently healthy population, there is still great concern for the long term prospects of the Mill Marsh West population and the 2014 data provides new evidence showing an impact and a loss of fen orchids to *Sphagnum* moss encroachment between 2013 and 2014.
9. The RSPB has previously reported monitoring work showing a significant increase in *Sphagnum* moss on Mill Marsh West since 1986³. Part of this *Sphagnum* is encroaching on the north western area of the fen orchid colony. The surveys in 2013 and 2014 have shown the fen orchids can persist in areas where *Sphagnum* cover is not total, but are absent from areas of *Sphagnum* dominance. Whilst a few individual plants may persist for a short period within increased *Sphagnum* areas, this is at the expense of the main colony, and represents a significant loss to the species for which Unit 3 is the UK stronghold, and is dependent on the microclimatic and habitat conditions within the area. The current work provides a good baseline, but the northern and western edge of the fen orchid colony will become increasingly more at risk. Unless suitable remedies are identified and agreed to address the increase in *Sphagnum* area, the potential available habitat for the colony is expected to decline over time, especially as the eastern edge is bounded by a drain.
10. Figure 3 shows the North of block C and indicates a loss of individual fen orchid plants between 2013 and 2014. This coincides with *Sphagnum* encroachment over just one year. Approximately 20 plants (60 spikes) found in this area in 2013 were not re-found in 2014.

³ RSPB (2014). 'A survey of *Sphagnum* moss at Butterfly Conservation Catfield Fen and comparison with past surveys. RSPB

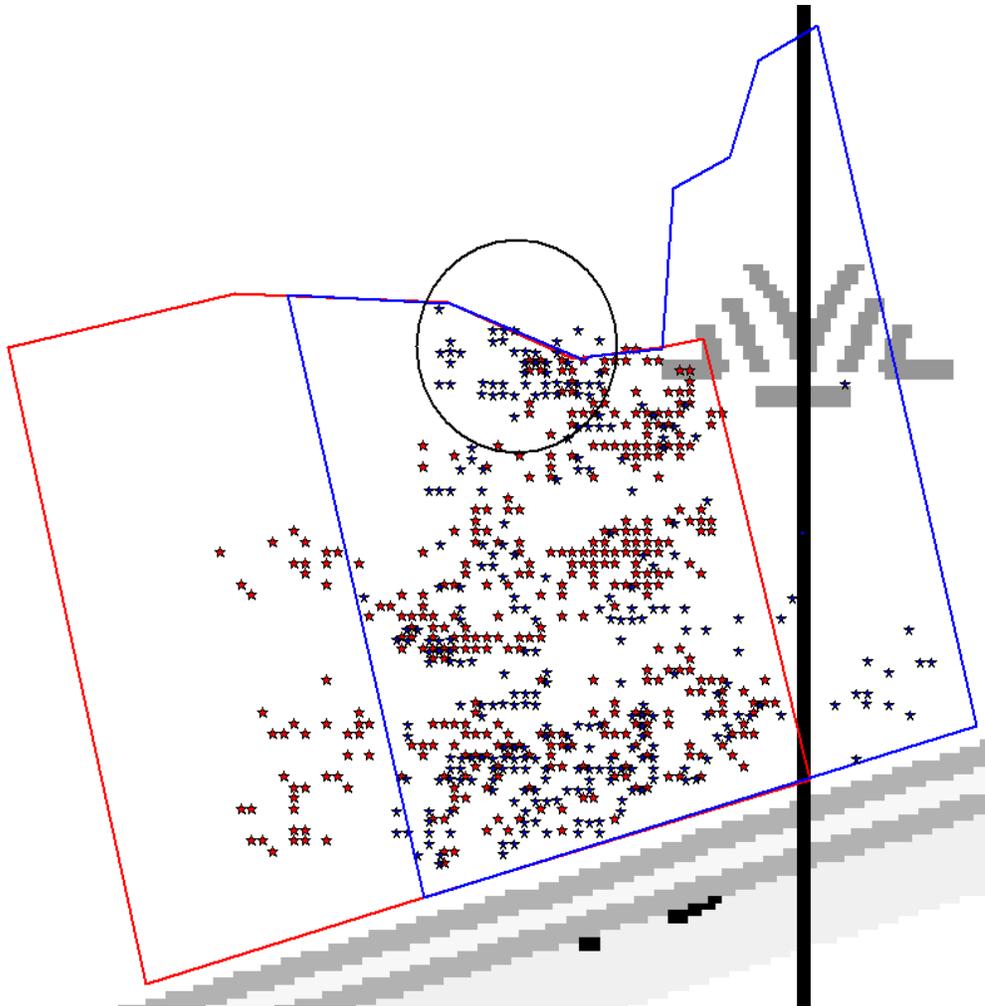


Figure3: Map showing loss of fen orchid to NW of colony

Red star = Fen orchid plant 2014

Red blocks = Area surveyed in 2014

Blue star = Fen orchid plant 2013

Blue blocks = Area surveyed in 2013

Black circle = Area of loss of fen orchids

Discussion of the fen orchid surveys

11. Unfortunately, there is not a historic data set that could demonstrate if there has been a gradual loss of fen orchid plants to the north west or west of the existing colony. A comparison between 2013 and 2014 is therefore the best data available to identify changes within the fen orchid colony. It appears that in general the population is healthy. However, *Sphagnum* spp. growth from the north west will be impacting this part of the colony and has resulted in the loss of fen orchid plants. Currently improved management to adjacent blocks to the E of this block has likely enabled improved conditions for fen orchid growth. This has potentially allowed the fen orchid colony to move further east. However, this potential easterly change in distribution will be limited due to the

unit being bounded by scrub and drainage ditches. Once the colony reaches such features it is anticipated that, absent appropriate remedies, the colony will start to decline as *Sphagnum* growth shows no sign of being halted and fen orchids are unable to survive the altered habitat conditions.

12. Due to the lack of data for block B in 2013, we do not know if there has been a similar loss from the west of the colony.
13. Both *Liparis* surveys highlight that over 90% of the known Mill Marsh population is within 35metres of the area of dominant *Sphagnum spp.* Between 1986 and 2014, the *Sphagnum* area on Mill Marsh West has spread up to 70m south and 50m east. A similar rate of increase (though there is anecdotal evidence that the rate of spread is increasing) could lead to a substantial loss of plants by 2020. In addition there are other areas of *Sphagnum* to the east of the main colony that are also expanding and placing further pressure on the fen orchid population.
14. This comparison on a year-to-year basis is not ideal and a longer term data set would be preferable. However, in the absence of a historic data set, this is the best empirical evidence of *Sphagnum* impacting on fen orchid, an SAC, Ramsar and SSSI feature, and further increases the importance of addressing the causes of *Sphagnum* encroachment at Catfield Fen.